

**INDEPENDENT OVERSIGHT SPECIAL STUDY
OF
OCCURRENCE REPORTING PROGRAMS
WITHIN THE
DEPARTMENT OF ENERGY**



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TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	iii
1.0 INTRODUCTION AND SCOPE	1
2.0 BACKGROUND OF THE ORPS	2
3.0 OCCURRENCE REPORTING PROGRAM ELEMENTS AND RESULTS	2
Line Management Responsibility	3
Policies and Procedures of DOE Field Elements and Contractors	3
DOE Line Management and Oversight of the Reporting Process	5
Comprehensive Requirements	5
Technical Competence	11
Staffing Levels	11
Personnel Training	11
4.0 CONCLUSIONS	12
APPENDIX A. SUMMARY OF INDIVIDUAL SITE OBSERVATIONS	A-1
APPENDIX B. TEAM COMPOSITION	B-1

LIST OF TABLES AND FIGURES

Table 1. Program Element Implementation	4
Table 2. Timeliness and Corrective Action Status	9
Figure 1. Events/Conditions Reviewed	8

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EXECUTIVE SUMMARY

Of utmost importance to the Department of Energy (DOE) Office of Environment, Safety and Health (EH) is the maintenance of a high degree of confidence in the environment, safety, and health (ES&H) data that the Department relies upon in making ES&H decisions. One type of data that the Department relies on heavily is occurrence reporting information, which is analyzed for adverse or positive trends and lessons learned. DOE Order 5000.3B, "Occurrence Reporting and Processing of Operations Information," provides the Department's requirements for occurrence reporting. In an effort to establish a baseline performance profile for the major Department sites, the Office of Oversight performed a special study of DOE line management implementation of the order.

This report provides the results of the special study concerning the status of occurrence reporting programs within the Department. The report was developed, at the request of the Director of the Office of ES&H Residents (EH-24), by staff personnel within the ten ES&H resident offices.

The objectives of the study were to: 1) evaluate the DOE field or area offices' performance in the management and oversight of occurrence reporting programs for their respective sites; 2) determine the extent of implementation of DOE Order 5000.3B across the DOE complex; and 3) determine whether this implementation is consistent across the DOE complex.

ES&H residents at the ten sites completed the requested study by conducting individual site surveillances, document reviews, facility tours, interviews with key personnel, and analysis of predetermined data fields in the DOE Occurrence Reporting and Processing System (ORPS). The study included a review of occurrence reporting practices for the period of January 1, 1994, through March 31, 1995.

Standardized lines of inquiry were developed to provide consistency, incorporating the tenets of three of the guiding principles identified by the Secretary of Energy as necessary for an effective safety management program. These guiding principles underscore: 1) line management's responsibility to establish and maintain clear, unambiguous lines of authority and responsibility; 2) the need for clear, unambiguous, and comprehensive requirements and standards to be available to and used by all personnel; and 3) the need for technical competence commensurate with responsibilities.

The results of this study indicate that all sites have established programs that generally meet the requirements of DOE Order 5000.3B in one or more program elements. The ES&H resident site surveillance reports, on which this study is based, identified program deficiencies at all sites. The number of deficiencies and their relative significance indicate that although programs established by line management in occurrence reporting do meet the overall spirit of the order, improvement is needed to effectively meet the requirements established in the order.

Findings relating to the DOE-wide implementation of DOE Order 5000.3B are summarized below under the three guiding principles.

LINE MANAGEMENT RESPONSIBILITY

- DOE line management at several field locations has not performed the required audits or appraisals of the contractor's performance concerning occurrence reporting.

- Most sites use a single, site-wide procedure rather than facility-specific procedures for implementing requirements and categorizing events. As a result, some of these sites have not developed the required facility-specific procedures, particularly those related to the identification of safety-class equipment and related reporting categorization.
- The cognizant secretarial offices have not reviewed and approved all of the occurrence reporting program's implementing procedures at most sites; this lack of review may contribute to inconsistencies in program implementation from site to site.

COMPREHENSIVE REQUIREMENTS

- Timely submittal of initial notifications, completion of reports, and closeout of corrective actions are not occurring at most of the sites reviewed.
- Inconsistencies in reporting thresholds and reporting categorizations were noted between sites even though the order adequately defines the reporting criteria.
- There is some evidence of under-reporting of events at sites with similar numbers and types of facilities, operations, and/or personnel. For example, many sites have under-reported incidents of drug abuse based on erroneous interpretations of the reporting criteria defined in DOE Order 5000.3B.
- Corrective actions are routinely developed, assigned, and scheduled for each occurrence report. However, at most sites, corrective actions do not consistently address the root or generic causes, and consequently are insufficient to prevent recurrence.

TECHNICAL COMPETENCE

- Staffing levels in DOE and DOE contractor organizations responsible for implementing DOE Order 5000.3B are adequate.
- Most sites reviewed provide adequate occurrence reporting training to personnel involved in implementing the requirements of DOE Order 5000.3B.

INDEPENDENT OVERSIGHT SPECIAL STUDY OF OCCURRENCE REPORTING PROGRAMS WITHIN THE DEPARTMENT OF ENERGY

1.0 INTRODUCTION AND SCOPE

The U.S. Department of Energy (DOE) utilizes a significant amount of environment, safety, and health (ES&H) data from various information systems to evaluate the effectiveness of safety management programs implemented by DOE line management. One type of data that the Department relies on heavily is occurrence reporting information, which is analyzed for adverse or positive trends and lessons learned. Because DOE management uses this data in the decision making process, it is critical to assure that the data in these information systems is validated and that these systems are operated and managed consistent with the requirements established in Departmental orders.

The Director of the Office of ES&H Residents (EH-24), by memorandum dated April 13, 1995, requested that the ES&H residents perform a special study of the occurrence reporting programs at ten key DOE sites, including Fernald, Hanford, Idaho National Engineering Laboratory, Los Alamos National Laboratory, Lawrence Livermore National Laboratory, Oak Ridge, Pantex, Rocky Flats, Savannah River, and Yucca Mountain. The objectives of the study were to: 1) evaluate the DOE field or area offices' performance in the management and oversight of the occurrence reporting programs for their respective sites; 2) determine whether DOE Order 5000.3B, "Occurrence Reporting and Processing of Operations Information," is being implemented as required; and 3) determine whether this implementation is consistent across the DOE complex.

ES&H residents at the ten sites completed the requested study by conducting individual site surveillances, document reviews, facility tours, interviews with key personnel, and analysis of the DOE Occurrence Reporting and Processing System (ORPS) utilizing predetermined data fields. To ensure that results could be compared across the various sites, the ES&H residents used standardized lines of inquiry incorporating the tenets of the three guiding principles the Secretary of Energy has identified as necessary for an effective safety management program. Under this study, occurrence reporting practices were evaluated for the period January 1, 1994, through March 31, 1995.

Management relies heavily on information from occurrence reports in decision making.

The status of the occurrence reporting programs was reviewed at ten key Department of Energy sites.

This report, prepared by ES&H residents representing the three ES&H resident regional areas, provides an evaluation of the individual site surveillances, with the goal of identifying any DOE-wide issues that may exist in the execution of the occurrence reporting requirements identified in DOE Order 5000.3B.

2.0 BACKGROUND OF THE ORPS

ORPS is a computer data base residing at the DOE Idaho site. The data base represents a compilation of operations information (individual site occurrence reports) related to DOE-owned or operated facilities throughout the country. DOE sites are required to submit occurrence reports into the data base for events or conditions consistent with the reporting criteria established in DOE Order 5000.3B. Occurrence reports contain a description of the event, and information such as categorization based on significance, grouping based on the nature of occurrence, direct and root causes, corrective actions, and lessons learned. Currently, ORPS contains over 27,000 individual reports collected over a five-year period. A total of 12 DOE field elements currently upload reports into the data base. The 12 DOE field elements account for the reporting of events at approximately 700 facilities DOE-wide.

3.0 OCCURRENCE REPORTING PROGRAM ELEMENTS AND RESULTS

The study consisted of a review of the following program elements, which are considered fundamental to ensure proper implementation of the occurrence reporting requirements specified in DOE Order 5000.3B:

- Policies and procedures of DOE field elements and contractors
- DOE management and oversight of the reporting process
- Personnel staffing levels and training
- Performance and implementation requirements
 - Reportable issue identification
 - Event reporting thresholds and categorization
 - Corrective action development and implementation
 - Report timeliness
 - Lessons-learned development and issuance
 - Trending of ORPS information.

The review was intended to identify Department-wide issues in meeting occurrence reporting requirements.

The Department's data base currently contains over 27,000 occurrence reports covering a five-year period.

The study addressed occurrence reporting policies and procedures, management and oversight, staffing, training, and performance and implementation requirements.

Table 1 summarizes the implementation of the above program elements at each of the sites reviewed. The individual site surveillances identified specific strengths and deficiencies, which are included in Appendix A, "Summary of Individual Site Observations." The results of the reviews of the individual site surveillances are summarized below within the three guiding principle categories.

LINE MANAGEMENT RESPONSIBILITY

It is DOE line management's responsibility to establish and maintain clear and unambiguous lines of authority and responsibility for ES&H programs, such as occurrence reporting, at all organizational levels. Also, clear and unambiguous requirements and standards must be available and utilized by all personnel implementing ES&H programs and policies.

Departmental policy requires clear lines of authority and unambiguous standards for occurrence reporting.

Policies and Procedures of DOE Field Elements and Contractors

All contractors reviewed have established policies and procedures for implementing DOE Order 5000.3B. Also, all DOE field elements reviewed have procedures that establish management and staff responsibility and accountability for incident and accident investigation and occurrence reporting. However, the individual site surveillances identified some common problems among the sites:

There is a lack of facility-specific procedures and inadequate approval of existing procedures.

- Most sites do not have facility-specific procedures. Typically, program implementation is based on one general procedure covering the entire site (all facilities) or large portions of a site. This approach is not consistent with the intent of DOE Order 5000.3B. A common problem resulting from this approach is that facility-specific lists of the Class A/B safety equipment have not been developed for inclusion or reference in the procedure. The purpose of the facility-specific equipment lists is to ensure consistent event reporting and categorization based on the significance of particular types of equipment failure or degradation. In addition to identifying responsibilities within a facility for reporting occurrences and identifying equipment classifications, the facility-specific procedure should also identify any reporting criteria or thresholds unique to a particular facility.
- Most sites' procedures have not been approved by the cognizant secretarial offices (CSOs), as required by DOE Order 5000.3B. The lack of CSO-approved procedures can cause inconsistencies in program implementation from site to site. Examples of inconsistencies in the way different sites implemented the requirements are noted below under "Comprehensive Requirements."

TABLE 1
PROGRAM ELEMENT IMPLEMENTATION

TABLE 1
PROGRAM ELEMENT IMPLEMENTATION

FN - Fernald
ID - Idaho
LANL - Los Alamos National Laboratory
OR - Oak Ridge

PTX - Pantex
RL - Richland
RF - Rocky Flats
LLNL - Lawrence Livermore National Laboratory

SR - Savannah River
YUCCA - Yucca Mountain

DOE Line Management and Oversight of the Reporting Process

ES&H residents' site surveillances included a review of the performance of DOE line management and their oversight of the occurrence reporting process, including: 1) a review of surveillances performed on occurrence reporting process elements by DOE field and area office personnel; and 2) an evaluation of day-to-day contractor oversight by DOE Facility Representatives.

From a Department-wide point of view, DOE line management oversight of occurrence reporting is considered to need improvement. At a number of sites, the DOE field offices have not established an active occurrence reporting audit and appraisal program addressing contractor performance. No occurrence reporting audits or appraisals were performed by the Oakland Operations Office (OAK) for Lawrence Livermore National Laboratory (LLNL), and a limited number of appraisals were performed by others, such as Oak Ridge Operations Office (OR) and Fernald Area Office (FN).

For example, OR did not perform adequate oversight of occurrence reporting activities. Oversight of the contractor was not effective in correcting programmatic deficiencies identified at Y-12, and OR has allowed contractors to report large numbers of similar events, occurring over a predetermined period of time, on a single "generic" occurrence report in a manner inconsistent with the order requirements. In addition to not effectively monitoring these generic occurrence reports, OR, through a lack of oversight, did not assure that all DOE Order 5000.3B requirements were satisfactorily met.

Similarly, FN did not effectively review occurrence reports to ensure that corrective actions and lessons learned were adequate to prevent recurrence, nor did FN ensure that the contractor performed these functions.

COMPREHENSIVE REQUIREMENTS

Clear, unambiguous requirements and standards must be available and utilized by all personnel implementing ES&H programs and policies.

Occurrence reporting requirements are being implemented at all sites. However, weaknesses and deficiencies in a number of areas were identified. Specific requirements of DOE Order 5000.3B are paraphrased below with corresponding observations.

Requirement: The facility staff shall identify and notify the facility manager of abnormal events.

Line management of occurrence reporting needs improvement Department-wide.

Lack of line management review has decreased management's ability to correct identified deficiencies and allowed "generic" occurrence reporting in a manner inconsistent with order requirements.

All sites reviewed have programs to ensure that when an abnormal event is identified, the event is evaluated to determine whether it is "reportable." The sites implement this requirement in a variety of ways. There are formal and informal training programs, which include classes, such as Conduct of Operations or General Employee Training; routine safety or plan-of-the-day meetings; and campaigns to promote awareness of worker duties. These training programs generally include requirements for reporting abnormal events to the first line supervisors, and subsequently to facility managers.

All sites have programs to ensure that abnormal events are evaluated for inclusion in the formal occurrence reporting process.

At Los Alamos National Laboratory (LANL), interviews with personnel indicated a low level of confidence that all reportable events are being identified and documented at the subcontractor level. DOE Order 5000.3B does not require subcontractors to report events or conditions through the occurrence reporting process; however, the order does require DOE contractors to report the events/conditions identified in the reporting criteria (see Appendix A) when they become aware of a reportable condition. This low level of confidence at LANL may be caused by the fact that interface requirements for subcontractor occurrence reporting have not been defined or contractually mandated at LANL.

Subcontractor responsibilities for occurrence reporting are not always well defined.

Weaknesses were also noted at FN concerning workers' reporting of abnormal events to supervisors, facility managers, and the Occurrence Reporting Group for reportability determinations.

Requirement: Appropriate, immediate corrective actions shall be taken to stabilize or return the facility to a safe condition.

Reviews of a sample set of completed occurrence reports found no deficiencies concerning immediate corrective actions taken by sites in response to events.

Requirement: The facility manager shall appropriately categorize the event using the guidance contained in DOE Order 5000.3B.

All sites reviewed have programs and procedures to implement the categorization requirement. However, data from the individual site surveillances indicate inconsistencies in what is reported and categorized at sites of similar size and activities. Some sites have operations personnel involved in the process, fostering a conservative attitude toward reporting (i.e., reporting threshold determinations that often exceed the guidance in the order). Other sites have inadequate categorization procedures, which can result in over- or under-reporting. Judging a site's performance on the basis of total number of occurrences reported involves many technical and programmatic pitfalls. Thus, this study concentrated on reviewing several types of occurrences at each site to minimize judgments and promote consistency.

Events are not categorized consistently across the Department.

The types of occurrences reviewed and the data from the study are shown in Figure 1, "Events/Conditions Reviewed." The data in Figure 1 indicates vast differences in the number of reports generated at sites with similar numbers and types of facilities, operations, and personnel. For example, many sites appear to have under-reported incidents of drug abuse. Even though the reporting criteria for drug-related incidents are adequately defined in DOE Order 5000.3B, DOE contractors at several sites have erroneously interpreted the criteria, with the result that incidents of drug usage discovered on site during random drug testing are not reported. Similarly, reports of falls resulting in injury and reports of violations and infractions of criticality limits vary by a factor of six among sites of similar size and activities.

Requirement: The facility manager and Facility Representative shall be available at all times to carry out the order requirements.

All sites have programs and/or processes to ensure that the facility manager and the Facility Representative are available at all times. DOE and contractor programs involve either notification callout lists or emergency duty officer programs.

Requirement: For oral notifications, the facility manager shall simultaneously contact the DOE Facility Representative and the DOE Headquarters Emergency Operations Center. The facility manager shall also notify the CSO of all emergencies and unusual occurrences. Also, the DOE Facility Representative shall notify the head of the field organization of reportable occurrences.

All sites have mechanisms in place to ensure that both DOE Headquarters and DOE field element personnel are notified as required.

Requirement: The facility manager shall prepare and submit the notification report and distribute it to the DOE Facility Representative and program manager before the close of the next business day from the time of categorization (not to exceed 80 hours).

All sites have experienced a problem in meeting this requirement; the magnitude of the problem varies among sites. For instance, at Hanford and FN, 1 percent of the notification reports were late, while at LANL, 59 percent of the notification reports were late. Table 2 shows the percentage of late notification reports identified for each site.

Table 2 also presents data on the timeliness of final report issuance. It is important to note that according to DOE Order 5000.3B, a report can be considered a final report when the analysis of the occurrence has been completed, root cause(s) and contributing cause(s) finalized,

The wide variation in number of reports generated by similar sites suggests widespread over- or under-reporting.

All sites have provisions to meet requirements for management availability for notifying the Department of significant occurrences.

Timely submittal of notification reports is a problem at all sites.

Figure 1

TABLE 2
TIMELINESS AND CORRECTIVE ACTION STATUS

Site	Notification Reports ²	Final Reports % Late ²			Average Calendar Days for Signature ²			ORPS Reports w/Outstanding CAs
	% Late	>45 Days	>100 Days	>200 Days	FM	FR	PM	
Fernald	1%	40%	19%	7%	82/40 ¹	14/51 ¹	12/11 ¹	11%
Idaho	4%	30%	9%	1%	48	15	15	52%
Los Alamos	59%	36%	17%	18%	106	13	14	45%
Oak Ridge	9%	28%	24%	22%	53	29	20	64%
Pantex	8%	32%	30%	11%	103	9	13	18%
Richland	1%	31%	14%	4%	55	60	37	49%
Rocky Flats	7%	26%	12%	6%	51	56	14	23%
Lawrence Livermore	7%	67%	28%	8%	77	19	9	44%
Savannah River	6%	45%	20%	8%	75	17	11	51%
Yucca Mountain	22%	63%	16%	5%	67	6	21	26%

¹ The first number indicates reports issued prior to 10/01/94, when Fernald reported to the Oak Ridge Operations Office. The second number is for reports issued after 10/01/94, when Fernald commenced reporting to the Ohio Field Office.

² The data in these columns are for reports issued during the period of January 1, 1994, through March 31, 1995.

Notification Reports % Late: This column indicates the percentage of notification reports exceeding the Order requirements from time of categorization to submittal of the initial written report.

Final Reports % Late: This column indicates the percentage of final reports exceeding either 45, 100, or 200 days respectively, from the time of categorization to Facility Manager's signature.

Average Calendar Days for Signature: The column for Facility Manager (FM) indicates the average calendar days from categorization to FM signature. The column for Facility Representative (FR) indicates the average calendar days from FM signature to FR signature. The column for Program Manager (PM) indicates the average calendar days from FR signature to PM signature.

ORPS Reports w/Outstanding CAs: This column indicates the total number of ORPS reports having outstanding corrective actions (CAs) as a percentage of reports issued in the last 12 months (June 1994 through May 1995).

corrective action(s) determined and scheduled, and lessons-learned identified. This table indicates that all sites have had significant problems in issuing final reports on time, resulting from both the contractor's lack of timely submittal of final reports, and DOE's lack of timely review and approval of submitted reports. For example, at Rocky Flats there were over 400 final reports in backlog, awaiting Facility Representative review and approval. At OR, where DOE Headquarters had not assigned a program manager, over 100 occurrence reports generated by one contractor are awaiting DOE Headquarters review and signature. Also, for most sites, the average number of days for final report submittal by the contractor facility manager has exceeded the 45-day goal.

The lack of timely issuance of final reports can be partly explained by the fact that the review period (January 1, 1994, through March 31, 1995) was a period of transition for the Facility Representative program at many sites. During this time, most of the Facility Representative programs were still under development, and many of the Facility Representatives were in training. Thus, Facility Representatives were not available to oversee the reporting processes.

Requirement: Effective corrective actions to abnormal events must be identified and implemented in a timely manner in order to prevent recurrence.

Corrective actions are being identified and implemented. However, these actions are not consistently implemented on time, verified as being closed, or effective in preventing recurrence. Failure to implement timely corrective actions is a problem that varies in magnitude across the complex (see Table 2). The same is true of the adequacy of corrective actions and their effectiveness in preventing recurrence. At most sites, examples of recurring events with similar generic causes were identified.

Requirement: Lessons learned and generic and programmatic implications are identified and elevated to the CSO and to the head of the field organization for appropriate action.

The review of the lessons-learned information described in occurrence reports and in established lessons-learned programs indicated that in general, sites have programs in place that meet this requirement.

However, weaknesses were identified in site-specific lessons-learned programs. At Hanford, inadequate management attention in this area and the lack of explicit guidance to identify lessons-learned expectations have resulted in a less-than-effective ability to identify and apply lessons learned. Also, FN does not have a mechanism in place to review occurrence reports for significance, perform trending, and disseminate lessons learned. To help address these weaknesses, the Department issued a DOE standard on lessons-learned in March 1995, and an accompanying DOE handbook on this subject should be issued in the near future.

Timeliness problems may have been exacerbated since the period of this review coincided with a period of developing the Facility Representatives program.

Corrective actions are not always timely or effective in preventing recurrence.

Lessons learned are not adequately analyzed, disseminated, or applied.

TECHNICAL COMPETENCE

The safety and health of workers and the public depend on a technically competent workforce accomplishing tasks in a formal, deliberate fashion in accordance with approved standards. The level of staffing and competence must be commensurate with the responsibilities of the program.

Staffing Levels

All sites reviewed had adequate staffing levels within DOE and DOE contractor organizations responsible for occurrence reporting.

Staffing levels and personnel training are generally adequate.

Personnel Training

Four of the ten sites reviewed provide adequate training to personnel with responsibilities for implementing DOE Order 5000.3B. At four other sites, some minor deficiencies were noted, and improvement is needed. The requirement for training is intended to ensure that contractor personnel responsible for reporting occurrences are appropriately trained in identifying, categorizing, and reporting occurrences to the appropriate level of management. The training generally provides the necessary skills for personnel who have responsibility for event categorization, notification, and root cause determination.

Although most sites have adequate training programs, some deficiencies were identified:

- The Richland Operations Office has not ensured that contractor personnel responsible for occurrence reporting receive the required training. Although ICF Kaiser Hanford and Pacific Northwest Laboratory personnel are trained in occurrence reporting requirements, the review found that almost 50 percent of the Westinghouse Hanford personnel responsible for occurrence reporting were not trained. Also, some DOE personnel under the Assistant Manager for Environmental Restoration have not had the required training.
- At FN, only a few DOE and contractor personnel responsible for the implementation of occurrence reporting have had the requisite training.

4.0 CONCLUSIONS

The results of this study of the effectiveness of DOE occurrence reporting programs at ten key Departmental sites, summarized in Table 1, indicate that all sites have established programs that generally meet the requirements of DOE Order 5000.3B in one or more program elements. Although the number of deficiencies and their relative significance indicate that programs established by line management in occurrence reporting do meet the overall spirit of the order, improvement is needed to effectively meet the requirements established in the order.

Overall, occurrence reporting programs require improvement in order to effectively meet all Departmental requirements.

APPENDIX A

SUMMARY OF INDIVIDUAL SITE OBSERVATIONS

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SUMMARY OF INDIVIDUAL SITE OBSERVATIONS

This attachment summarizes observations, strengths, and concerns identified in each of the ten special surveillance activities for:

- Savannah River Operations Office (SR)
- Pantex Plant
- Los Alamos National Laboratory (LANL)
- Rocky Flats Environmental Technology Site (RFETS)
- Hanford Site/Richland Operations Office (RL)
- Yucca Mountain Site Characterization Office (YMSCO)
- Fernald Area Office (FN)
- Idaho National Engineering Laboratory (INEL)/Idaho Operations Office (ID)
- Oak Ridge National Laboratory (ORNL)/Oak Ridge Operations Office (OR)
- Lawrence Livermore National Laboratory (LLNL).

SAVANNAH RIVER

- The process for occurrence reporting, including analysis, corrective actions, and followup, satisfies (and in some instances exceeds) DOE requirements.
- SR provides effective management and oversight of contractor efforts for significant occurrences. Management and oversight of less consequential occurrences (e.g., changes to corrective action implementation schedules) are often delegated to contractors with periodic oversight of these activities.
- The large number of occurrence reports generated makes it difficult to meet reporting deadlines. Emphasis is placed on reports with greater safety significance or program milestone impact.
- Electronic communication problems between Savannah River equipment and INEL continue to reduce the reliability and usefulness of the Occurrence Reporting and Processing System (ORPS) and other INEL computer-based systems.
- Occurrence identification, reporting, recording, and correction requirements not emphasized by ORPS (including occupational safety and health and occupational medicine) are separately maintained by the contractor, and managed by SR.
- Reporting thresholds at the Savannah River Site appear to be lower than required by the DOE order, resulting in large numbers of occurrence reports, only a few percent of which involve significant events.

PANTEX

- A satisfactory process for occurrence reporting has been implemented at Pantex.
- DOE Amarillo Area Office (AAO) Facility Representatives have not been approving changes in the schedule for completion of occurrence report corrective actions.
- The increased number of occurrences reported beginning in 1994 has created a problem in meeting the time limits for reporting. The management and operating (M&O) contractor is aware of this and is taking action to improve efficiency.
- There is no agreement between the M&O contractor, the AAO, the Albuquerque Operations Office, and DOE Headquarters Defense Programs on whether Pantex is over- or under-reporting.
- The increase in occurrence reporting is attributed to the emphasis placed on conduct of operations by both DOE and the contractor.

LOS ALAMOS NATIONAL LABORATORY

- Procedures have not been developed and implemented to define the responsibilities of the Los Alamos Area Office (LAAO) with regard to occurrence reporting as required by DOE Order 5000.3B(8)(d)(1).
- LAAO has not ensured that LANL facilities have developed and implemented procedures to define facility-specific occurrence reporting requirements as required by DOE Order 5000.3B(8)(d)(2). Although a LANL-wide Occurrence Reporting Manual is in place, it was approved by LAAO, and not by the cognizant secretarial office (CSO) as required. There is no evidence that the CSO delegated approval authority for occurrence reporting procedures to LAAO management.

Although the LANL Occurrence Reporting Manual is the primary document used in the occurrence reporting process, it has not been consistently implemented across the site. The LANL Occurrence Reporting Group Leader (ESH-7) stated that the lab-side Occurrence Reporting Manual has not been institutionalized or adopted for use by all LANL facilities.

- LAAO has not ensured that LANL evaluates and considers the adequacy of requirements placed on subcontractors for occurrence reporting when work is subcontracted to outside firms. Occurrence reporting interface requirements for subcontractors performing work at LANL have not been defined. Compliance with occurrence reporting requirements is not contractually mandated. Interviews with personnel responsible for monitoring subcontractor work activities indicate a low level of confidence that subcontractor occurrences are being identified and reported.
- LAAO has not ensured that LANL personnel responsible for occurrence reporting are appropriately trained. Review of training records maintained by the LANL Occurrence Reporting Group indicated that 63 percent (295 of 467) of the facility managers and facility manager designees had received training in the analysis of root causes and generic implications for occurrences. The rest of the LANL work force receives a 10-15 minute briefing on occurrence reporting as part of their General Employee Training.
- LAAO has not ensured that LANL occurrence notifications are executed in a timely manner. For the 338 occurrences reviewed during the period 01/01/94 through 03/31/95:
 - Categorization notifications were late for 31 percent (107 out of 338) of the occurrences.
 - Verbal notifications of unusual occurrences were late for 91 percent (39 out of 43) of the occurrences.

Each of the 338 reported occurrences was reviewed to determine whether written notifications were made within the required one working day. All reports of less than 24 hours, and those occurring on Fridays with reporting within 80 hours, were excluded from this review. Based upon this data evaluation, written occurrence notifications were late for 59 percent (198) of the occurrences reported by LANL.

- Facility Representative occurrence reporting surveillances identified four recurring problem areas, which were transmitted to LANL management by the LAAO Manager. These included: 1) lack of timely categorization and submission of occurrence reports; 2) deficiencies in closure of identified corrective actions; 3) failure to conduct critiques in a timely manner (now closed); and 4) failure to identify Class A and Class B equipment.

- Johnson Controls World Services, Inc., was the only contractor of those reviewed during this surveillance that routinely evaluated non-reportable (Category IV) occurrences for trends or precursors. Interviews and meeting notes indicate that such events from the preceding week are routinely discussed during senior staff meetings.
- LANL Procedure PRD120-01.0, "Occurrence Investigating and Reporting Program," requires the facility manager or designee to notify the Emergency Management and Response (EM&R) organization "of reportable or potentially reportable abnormal events or conditions," which would start the clock for notification. However, interviews with the ESH-7 Group Leader indicated that in most cases, EM&R was considered solely an emergency organization and that facility manager notifications were generally made through the ESH-7 organization, which then notified EM&R. Inconsistency between the reporting requirements contained in the procedure and those actually followed in practice could lead to confusion about the appropriateness of notifications.

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

- There is currently a large backlog of reports (approximately 480) awaiting Facility Representative review and approval.
- Review and approval by Rocky Flats Field Office (RFFO) Facility Representatives and the CSO of the contractor's implementing procedures for DOE Order 5000.3B have not been documented as being completed.
- The RFFO local directive for DOE Order 5000.3B needs to be revised to reflect termination of the DOE duty officer program and establishment of the new system/responsibilities for RFFO continuous availability. Also a complete Facility Representative phone listing needs to be issued to their Emergency Operations Center Notification Officer (EOCNO).
- The local RFFO directive for DOE Order 5000.3B states that the Standards Performance and Assurance Division will review occurrence report information to identify and disseminate lessons learned. Currently, there is no mechanism to accomplish this.
- The Environmental Management Program Office indicated to RFFO that RFETS appears to be overly conservative in reporting based on a statistical comparison with other sites. The ES&H residents agree with this assessment based on analysis of occurrence reporting data and a review of a sample of completed reports.
- A large number of reports do not meet the timeliness goals of the order.
- Currently, none of the non-resumption facilities at RFETS have developed the Class A/B equipment lists required by DOE Order 5000.3B.
- A large number of corrective action plans (approximately 186 out of 291) are overdue for submittal.
- Headquarters Environmental Management guidance concerning required information in occurrence reports involving contamination events has not been effectively implemented at the site.
- Lessons-learned bulletins are not being issued in a timely manner, based on discussions with the operations staff, and on a recent site event. Also, RFFO is not on distribution for the lessons-learned bulletins.
- Some of the occurrence reports reviewed appeared to be categorized over-conservatively.
- The documented corrective actions in some occurrence reports were deficient.

HANFORD

- RL's oversight of Westinghouse Hanford Co. (WHC) implementation of DOE Order 5000.3B is adequate and continues to improve as the Facility Representative organization matures, and support organizations are increasing their cooperation and mutual support in the oversight of the contractor.
- WHC is adequately implementing the order; however, there are some weaknesses in training and lessons-learned.
- RL's oversight of Bechtel Hanford, Inc. (BHI) is deficient in many respects. The line organization responsible for DOE Order 5000.3B implementation is not performing adequately in this area due to lack of training in the requirements.
- BHI's compliance with the order is adequate. However, some minor training noncompliances exist.
- RL's oversight of Pacific Northwest Laboratory (PNL) is adequate. RL is cognizant of most deficiencies in the PNL occurrence reporting program but has failed to follow through with their findings to ensure adequate corrective actions. Moreover, RL has been ineffective in convincing PNL to make speedy programmatic changes to improve the program.
- PNL has committed to RL that deficiencies in PNL's occurrence reporting program will be corrected when the newly established operations improvement program is fully implemented.
- RL's oversight of ICF Kaiser Hanford (ICF-KH) implementation of DOE Order 5000.3B is adequate and continues to improve as the Facility Representatives at ICF-KH facilities improve their knowledge of ongoing operations. Minor implementation problems exist primarily because the Facility Representatives at the ICF-KH facilities are relatively new at these facilities.
- ICF-KH has a system that captures and reports reportable events and in general, ICF-KH complies with the order. However, the corrective actions and lessons learned generated by these reports sometimes fail to prevent recurrence.

YUCCA MOUNTAIN

- Both YMSCO and the M&O contractor have procedures in place and implemented for reporting occurrences. YMSCO developed Procedure No. YAP-30.1, "Occurrence Reporting and Processing of Operations Information," and formally directed the M&O contractor to use this procedure to implement DOE Order 5000.3B. DOE-YMSCO has verified that the M&O contractor has implemented this procedure to meet the mandates and requirements of the order.
- The YMSCO Facility Representatives Designee (FRD) monitors, on a day-to-day basis, all operations at the Yucca Mountain Project (YMP). The YMSCO FRD has been trained on the YMSCO occurrence reporting procedure and has attended the Occurrence Reporting and Processing System (ORPS) training in Idaho.
- The YMSCO FRD determines the adequacy of investigation and analysis of the occurrence before approving the report. The FRD determines whether contributing and root causes of the events are adequately determined. If the FRD is not satisfied with the reporting process, the report is rejected.
- All final occurrence reports approved by the YMSCO FRD contain root causes, corrective actions, and lessons learned.
- All M&O contractor facility managers and Facility Representatives have been formally trained on the ORPS event categorization and reporting process. One M&O contractor employee is trained as an ORPS trainer.
- The M&O contractor tracks all incidents, including those that are not reportable, searching for trends. All incidents are reported to the Field Operations Center (FOC). There is no minimum threshold for reporting incidents. All YMP personnel are trained to report every incident to the FOC.
- YMSCO requires that the YMP report on the ORPS system any incident that is reported external to the DOE (e.g., State of Nevada, Nuclear Regulatory Commission).
- YMSCO has conducted surveillance/audits on the occurrence reporting program but has not documented them.
- While reviewing the YMP ORPS reports, the ES&H resident found that 14 of 27 reports exceeded the two-hour limit between identification of the reportable event and the categorization of the event as required by DOE Order 5000.3B.
- The YMSCO FRD does not scan other external DOE sites' ORPS reports. Other DOE sites are primarily nuclear sites, and not construction projects like YMP. The FRD feels that information from these other sites is not pertinent to YMP. Thus, the DOE FRD does not provide information regarding occurrence reports from other external DOE facilities and lessons learned to the facility manager to improve facility operations.
- The M&O contractor does not scan other external sites' ORPS reports for lessons learned and other operations information.
- The M&O contractor controls the completion dates for occurrence corrective actions and can change the corrective action due dates without YMSCO approval of the delays. The M&O contractor cannot

delete corrective actions or change the wording and work scope of a corrective action without YMSCO approval.

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT PROJECT

- FN does not effectively review occurrence reports to assure that corrective actions and lessons learned are adequate to prevent recurrence.
- FN does not ensure that contractor staff perform their assigned functions.
- Although contractors recognize and report events, there is no mechanism for identifying adverse performance trends.
- Improvement is needed in:
 - Defining thresholds for event reportability
 - Quality of fact finding
 - Completeness of causal analysis
 - FN corrective action closure.
- Not all FN Facility Representatives are currently trained or assigned the responsibility to oversee the event reporting for his/her facilities. This duty is assigned to a duty officer, who may or may not be a designated Facility Representative.
- FN line/project managers are not currently trained or assigned the responsibility to oversee or periodically review the Occurrence Reporting and Processing System (ORPS) for operational information.
- The facility managers of the contractor, Fernald Environmental Restoration Management Corporation (FERMCO), are not fully trained or assigned the responsibility to manage the ORPS for their facilities.
- FN has not instituted routine involvement in the FERMCO event critique/fact gathering process.
- FERMCO facility managers are not currently trained on or routinely assigned the responsibility to investigate events.
- No FN-designated duty officers have attended the event reporting course required by the FN Occurrence Reporting Implementation Procedure.

IDAHO NATIONAL ENGINEERING LABORATORY

- INEL has implemented a satisfactory process for occurrence reporting.
- Procedures and agreements required by DOE Order 5000.3B and the Manual of Functions, Assignments, and Responsibilities for Nuclear Safety (FAR Manual) have not been established by the responsible CSOs.
- ID has not ensured that agreements required by DOE Order 5000.3B and the FAR Manual have been established with the responsible CSOs.
- The previous use of multiple contractors at the INEL resulted in inconsistent levels of training for contractor facility managers.
- The current INEL issue management systems do not effectively track, trend, or correct identified issues.
- ID Facility Representatives have been assigned to specific facilities and have been designated responsibility for implementing the relevant requirements of DOE Order 5000.3B, including oversight of the site's reporting system.
- The ID Office of Policy and Assurance has a group responsible for environment, safety, and health (ES&H) oversight. Because the Occurrence Reporting and Processing System (ORPS) has not been a significant problem for ID, this group has not conducted or scheduled an assessment specific to ORPS. ID line management facility representatives and managers have conducted oversight assessments.
- ID line management uses the status of ORPS reports as input to determine awards in the contractor cost plus award fee contract.
- Currently, the new contractor is providing oversight of ORPS and publishing monthly reports on the status of ORPS reports. The new contractor will consolidate the different ORPS programs of the previous contractors into one program. Oversight of ORPS will be the responsibility of the Quality Division.
- Major facilities at INEL have facility-specific procedures for implementing DOE Order 5000.3B. However, only two of these facilities (Idaho Chemical Processing Plant and the Specific Manufacturing Capability Facility) have procedures approved by the responsible CSO.
- Contractor ORPS training programs do not adequately address specific user responsibilities for implementation of DOE Order 5000.3B.

OAK RIDGE

- Overall, a satisfactory process for reporting occurrences has been implemented at ORNL, K-25, and Y-12.
- For Lockheed Martin Energy Systems (LMES) activities at Y-12 and Johnson Controls World Services, Inc. (JCI) activities at Oak Ridge, OR frequently does not comply with DOE Order 5000.3B occurrence reporting and processing requirements for the timely determination and documentation of causes and corrective actions, and for the timely preparation, submittal, review, and approval of final occurrence reports.
- OR does not perform oversight of DOE line management occurrence reporting activities, and only performs oversight of each Oak Ridge site contractor's occurrence reporting activities about once every two years. This level of oversight has not been effective in correcting programmatic deficiencies identified for Y-12 LMES and JCI.
- OR has allowed contractors at Oak Ridge to report large numbers of similar occurrences, occurring over a predetermined period of time, on a single "generic" occurrence report. Such a practice skews the actual number of occurrences to a very low number. DOE-OR has not effectively monitored these generic occurrence reports, and not all occurrence reporting and processing requirements are being met.
- DOE line management has not taken the actions necessary to ensure that a program manager is assigned to JCI, as required by DOE Order 5000.3B. As a result, none of JCI's over 100 occurrence reports are final.

LAWRENCE LIVERMORE NATIONAL LABORATORY

- The Facility Representative for the Superblock identified and raised an issue concerning repeated contamination events based on day-to-day reviews of reportable events. The issue was formally addressed by LLNL management.
- The High Explosives Assembly Facility (HEAF) Facility Manager stated that the Facility Representative was instrumental in obtaining occurrence information from other sites/facilities for use at his facility.
- No formal appraisal by the Oakland Operations Office addressing DOE Order 5000.3B implementation has been performed or scheduled at LLNL.
- The LLNL local implementing procedures have not been formally approved by the Facility Representatives or the CSOs as required.
- LLNL local procedures concerning Facility Representative verification reviews of occurrence report corrective actions and preparation of annual trend/generic cause analysis reports are not being complied with.
- The Oakland Operations Office has established multiple and inconsistent systems for accomplishing after-hour notifications and response at the various sites it oversees. The multiple systems seem inefficient and could negatively impact event notification and response.
- Approximately 2500 of 7500 Laboratory employees have attended a training course specific to occurrence reporting.
- There has been a decreasing trend in the number of overdue occurrence report corrective actions.
- The Laboratory has not developed a formal listing of Class A/B equipment as required for use in the categorization of occurrences at Building 332.
- A large number of reports do not meet the timeliness requirements/goals specified in the order.
- The facility managers were not aware of, or did not receive, the trending analysis reports prepared by the Assurance Review Office.
- The Facility Representatives indicated that the Laboratory still struggles with the timely determination of whether or not an event is reportable.
- The Building 332 operations logbook was reviewed. All of the abnormal conditions documented in the logbook that meet the threshold for reporting were noted to have been reported as required.

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APPENDIX B

TEAM COMPOSITION

APPENDIX B

TEAM COMPOSITION

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